

The U.S. Environmental Protection Agency and the Department of Defense Collaborate to Enhance On-Site Detection and Identification of Pesticides and Nerve Agents

Theresa Cole

Environmental Protection Specialist

U.S. EPA Office of Prevention, Pesticides and Toxic Substances (OPPTS)/Office of Pesticide Programs (OPP)/Biological and Economic Analysis Division (BEAD)/Analytical Chemistry Laboratory (ACL)

(410) 305-2907

cole.theresa@epa.gov

Authors: Chet Bryant¹, Dallas Wright²

¹Department of Defense/U.S. Air Force

²U.S. EPA OPPTS/OPP/BEAD/ACL

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The U.S. Environmental Protection Agency's (EPA's) Office of Pesticides Programs (OPP) Analytical Chemistry Laboratory (ACL) and the U.S. Air Force collaborated to support Homeland Security by producing a library of infrared spectra that would be used with a portable Fourier Transform Infrared (FTIR) detector to compare and identify pesticides that might be used at a possible terrorist or weapons of mass destruction (WMD) site. OPP's National Pesticide Standard Repository (NPSR) has over 2,500 pesticides and metabolite standards that are routinely used by federal and state governments to enforce pesticide regulations. When the Department of Defense wanted to enhance their existing pesticide library data, they contacted OPP for help. In response, NPSR prepared approximately 270 aliquots of pure pesticide standards for inclusion in the database. Of these, approximately 210 were considered similar enough in structure to chemical nerve agents (e.g., GA, GB, and VX) to possibly cause false positive results. Afterwards, representatives from the Air Force stationed at the Uniformed Services University for Health Sciences and the manufacturer, Smith Detection (formerly SensIR), used the portable "Traveler IR" FTIR to scan approximately 210 of the pesticide standards. A ruggedized field version of the Travel IR, the HazMatID, purchased by the Air Force, Navy, and Army, can actually analyze solid and liquid samples and match the spectrum to existing libraries.

This collaborative effort will be a significant help to military or other first responders in the event of a possible terrorist incident by expanding the capability of the detector to identify a larger group of possible chemical agents and reducing the possibility of false positive results. The ability to identify an agent in the field without needing to ship it to an off-site laboratory allows first responders to quickly evaluate the risk and determine appropriate medical treatment for any casualties and measures needed to remediate the location.

The poster will feature pictures of the NPSR and describe how pesticides standards are distributed. Additionally, there will be a description of how the field use of the portable FTIR unit will enhance the ability to detect and identify chemical agents on site.